

3-2 Solving Systems Algebraically

Substitution and Elimination

Substitution

$$x + 4y = 26$$

$$x - 5y = -10$$

$$x = 5y - 10$$

$$5y - 10 + 4y = 26$$

$$9y = 36$$

$$y = 4 \quad x = 10$$

$$(10, 4)$$

Substitution

$$3x + y = 18$$

$$4x + 5y = 13$$

$$y = -3x + 18$$

$$4x + 5(-3x + 18) = 13$$

$$4x - 15x + 90 = 13$$

$$(7, 3) \quad x = 7 \quad y = -3$$

Elimination

$$x + 2y = 10$$

$$x + y = 6 \quad \times -1$$

$$x + 2y = 10$$

$$-x - y = -6$$

$$x = 2 \quad y = 4 \quad (2, 4)$$

Elimination

$$\begin{array}{r} 2x + 3y = 12 \quad \times 2 \\ 5x - 2y = 11 \quad \times 3 \end{array}$$

$$\begin{array}{r} 4x + 6y = 24 \\ 15x - 6y = 33 \\ \hline 19x = 57 \\ x = 3 \end{array}$$

(3, 2)

Elimination

$$\begin{array}{r} -3x + 5y = 12 \quad \times 2 \\ 6x - 10y = -21 \\ \hline -6x + 10y = 24 \end{array}$$

$$0 \neq 3$$

False

 \emptyset

Elimination

$$\begin{array}{r} 3x + 2y = 9 \quad \times (-3) \\ 9x + 6y = 27 \\ \hline -9x - 6y = -27 \end{array}$$

$$0 = 0$$

True

 ∞ # of sol's on the line $3x+2y=9$

HW

p120-121

13, 14, 17, 19, 23, 24, 29, 31, 34, 39,
40, 45-47